

100  
FIGURE 1

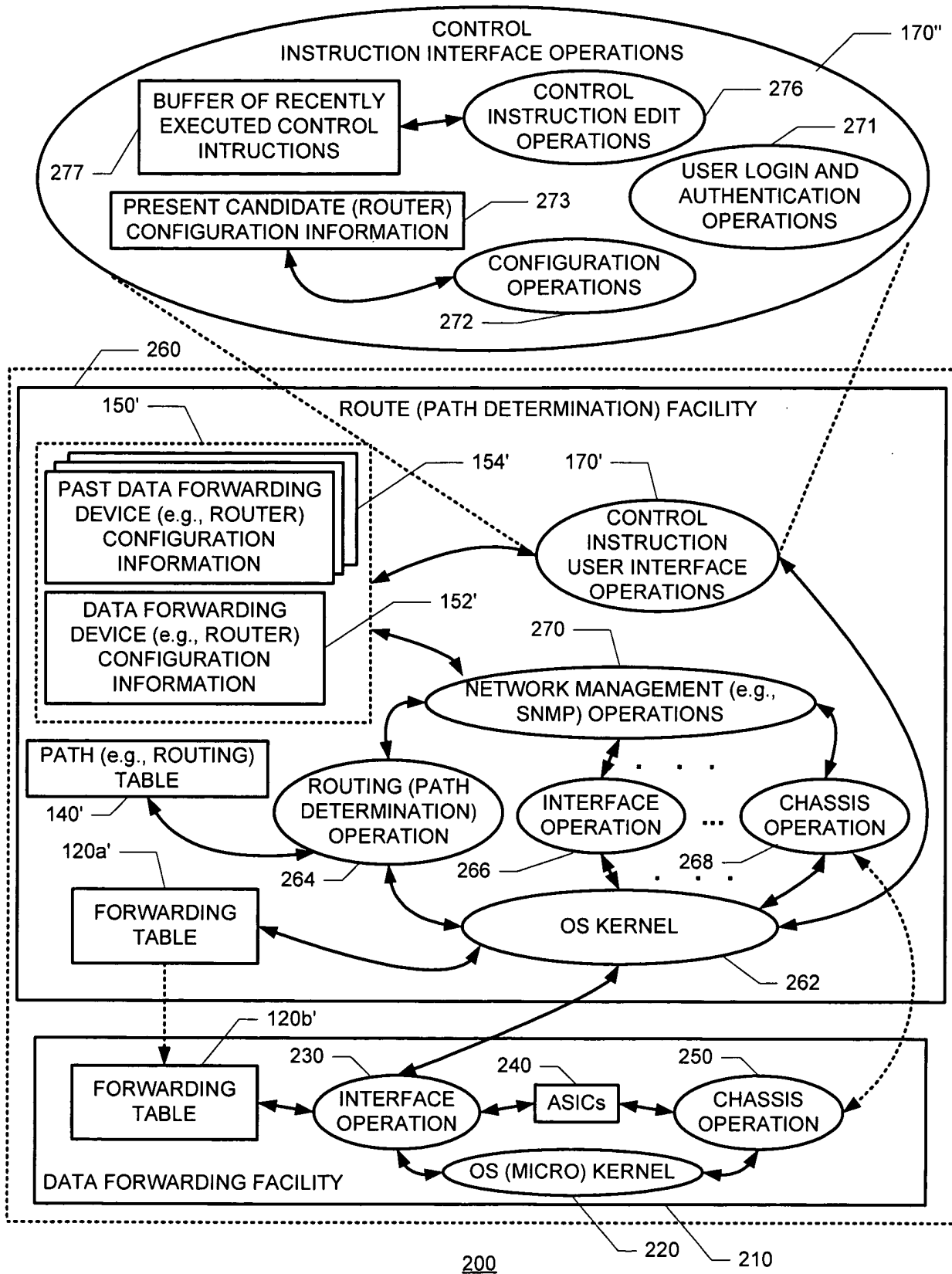


FIGURE 2

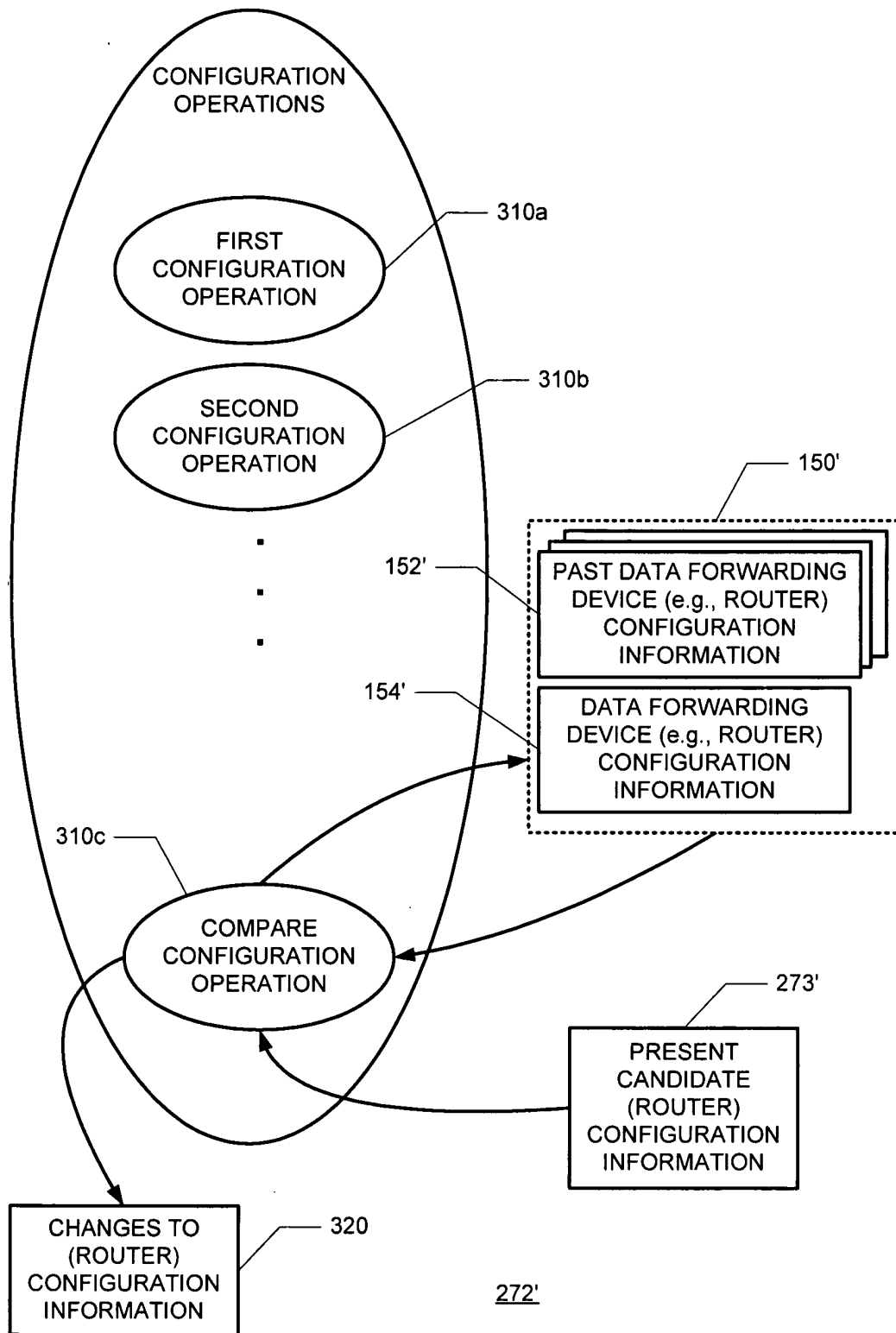


FIGURE 3

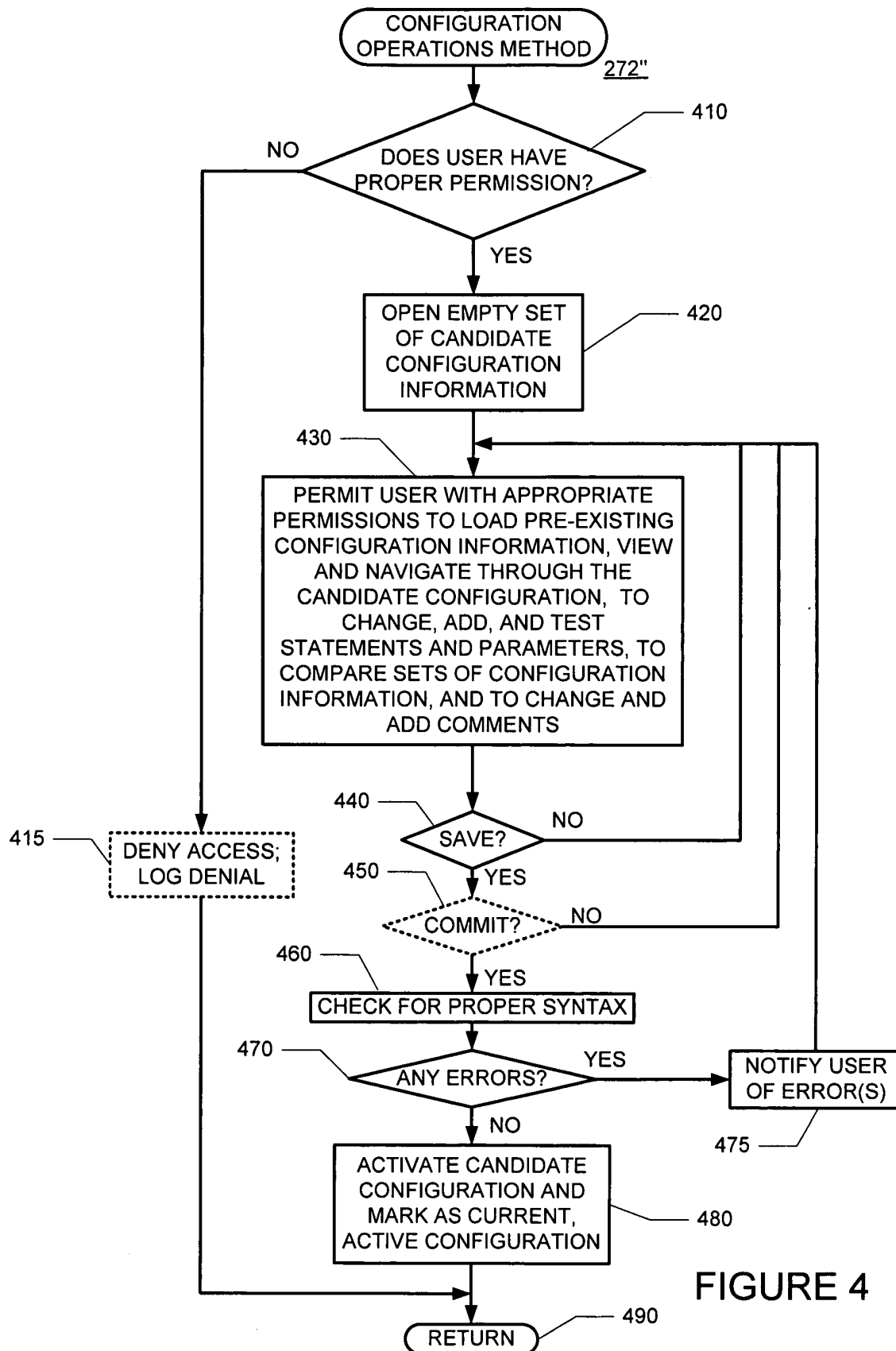


FIGURE 4

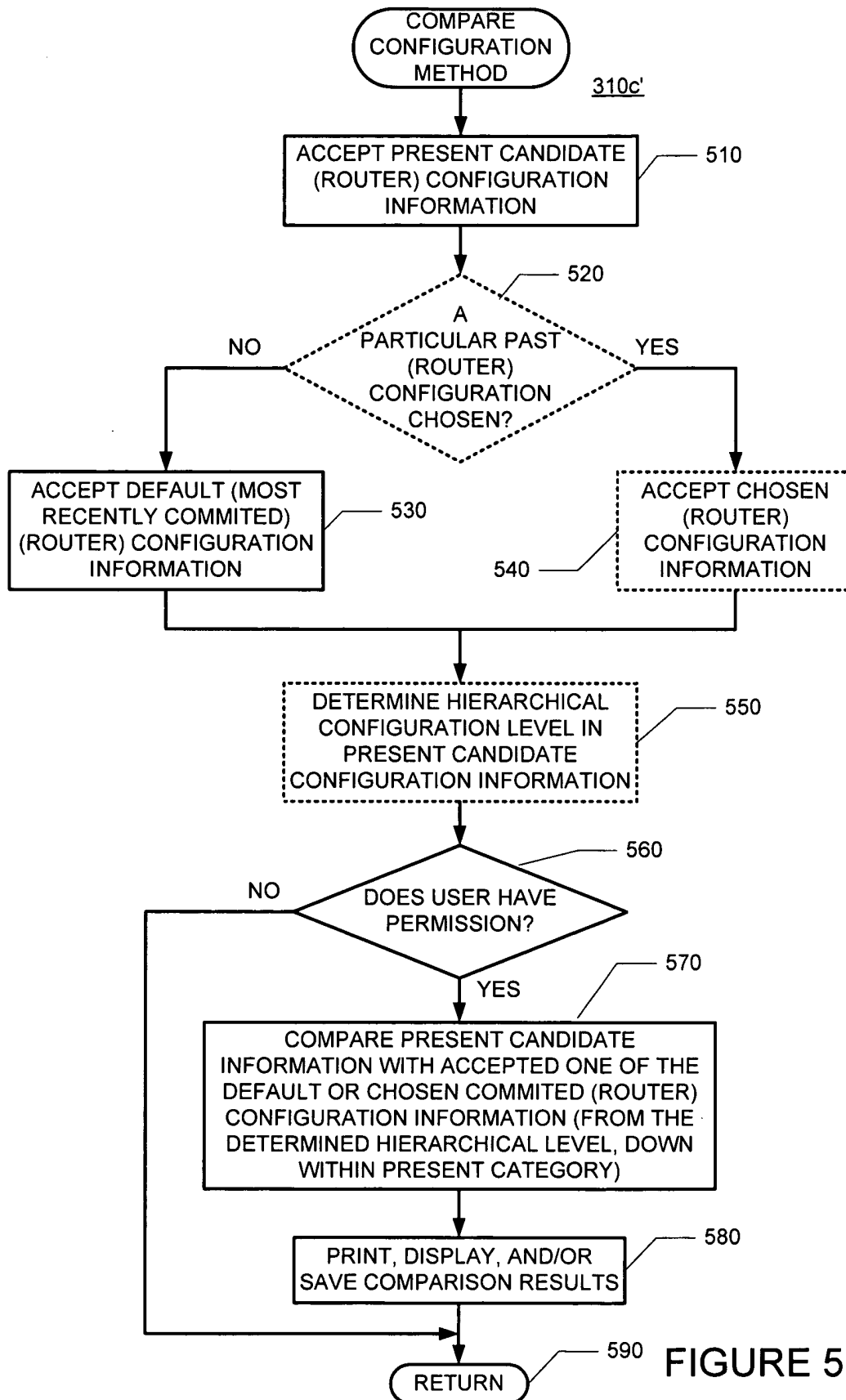
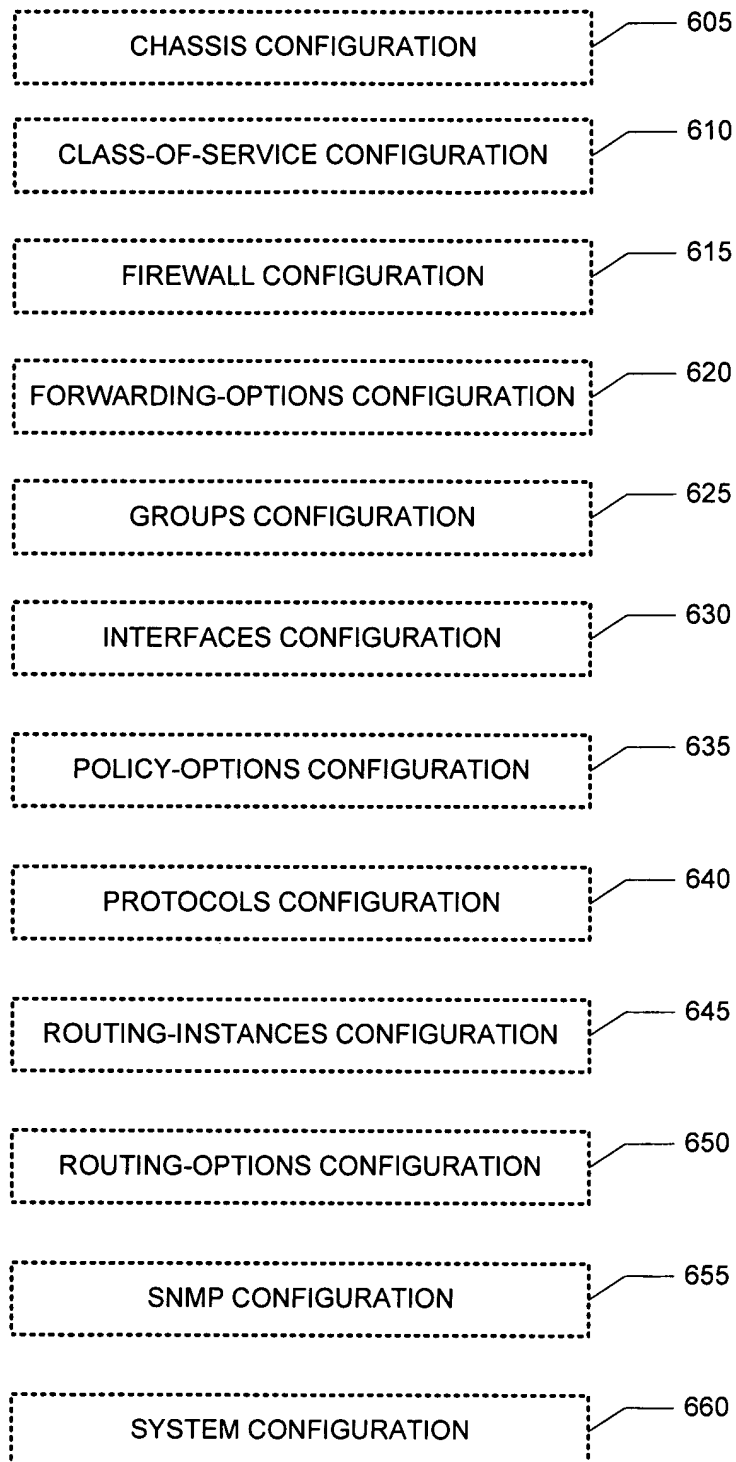


FIGURE 5

ROUTER CONFIGURATION FILE



152"

FIGURE 6

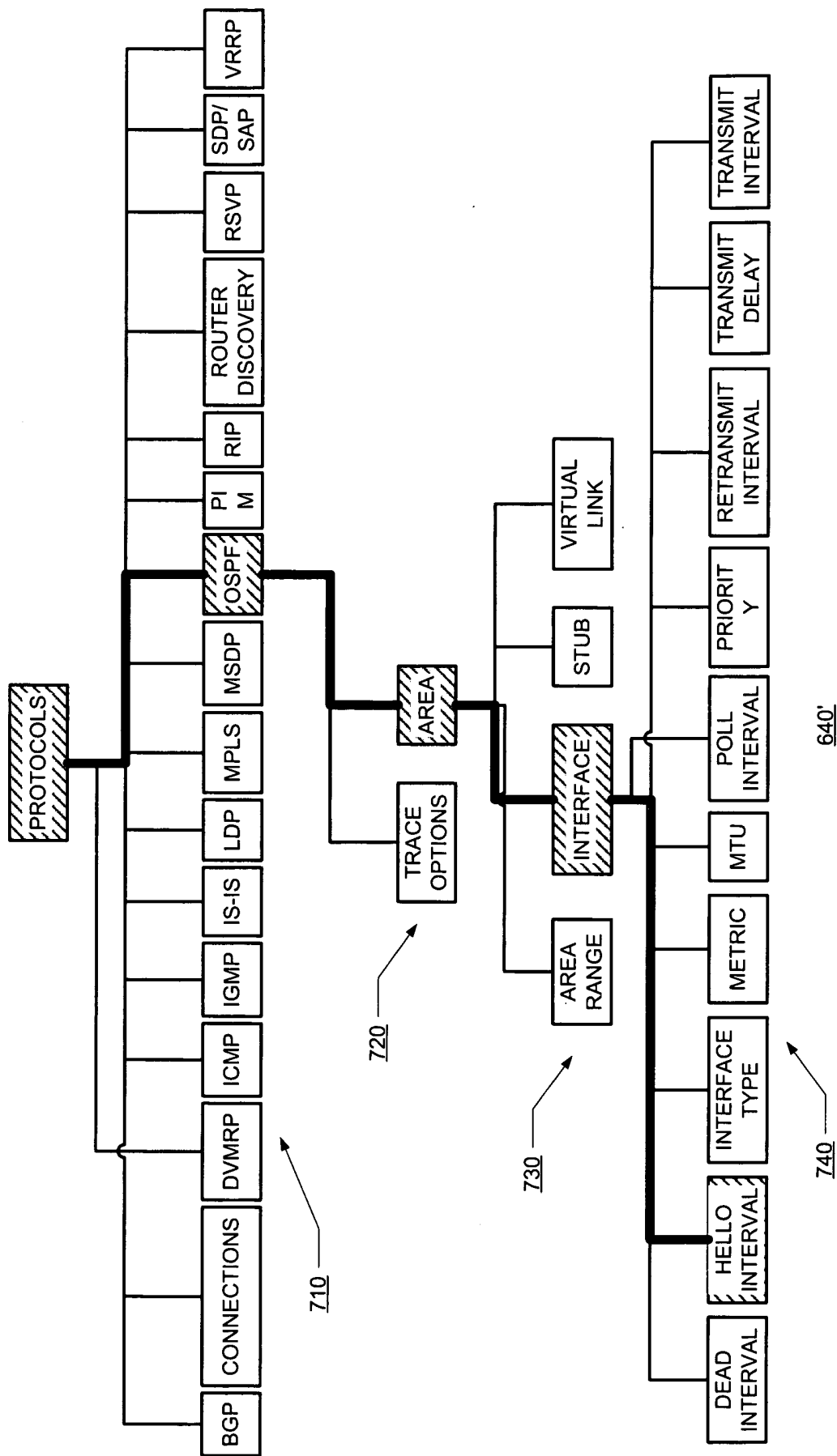


FIGURE 7

***[edit chassis] Hierarchy Level***

```
chassis {  
  alarm {  
    interface-type {  
      alarm-name (red | yellow | ignore);  
    }  
  }  
  filter-check days;  
  fpc slot-number {  
    pic pic-number {  
      framing (sdh | sonet);  
      no-concatenate;  
    }  
  }  
  (no-source-route | source-route);  
  redundancy {  
    routing-engine slot-number (master | backup | disabled );  
    ssb slot-number (always | preferred);  
  }  
} # End of [edit chassis] hierarchy level
```

**FIGURE 8**



### *[edit class-of-service] Hierarchy Level*

```
class-of-service {
  input {
    fpc fpc-number {
      precedence-map map-name;
    }
  }
  interfaces {
    interface-name {
      inet-precedence-map;
      mpls-cos-map;
      unit unit-number {
        output-queue queue-number;
      }
    }
  }
  precedence-map map-name {
    bits precedence-bit output-queue queue-number;
  }
}

output {
  drop-profile profile-name {
    stream-profile {
      fill-level fill-percentage drop-probability probability-percentage;
    }
    plp-set-queue-profile {
      fill-level fill-percentage drop-probability probability-percentage;
    }
    plp-clear-queue-profile {
      fill-level fill-percentage drop-probability probability-percentage;
    }
  }
  fpc fpc-number {
    drop-profile profile-name;
  }
  interfaces {
    interface-name {
      transmit-queues {
        output-queue queue-number bandwidth percentage;
      }
      weighted-round-robin {
        output-queue queue-number weight percentage;
      }
      unit unit-number {
        precedence-rewrite {
          output-queue queue-number {
            plp-clear rewrite-bits precedence-bit;
            plp-set rewrite-bits precedence-bit;
          }
        }
      }
    }
  }
}

policy {
  class class-name {
    classification-override {
      output-queue queue-number;
    }
  }
}

# End of [edit class-of-service] hierarchy level
```

FIGURE 9

### ***[edit firewall] Hierarchy Level***

```
firewall {  
  filter filter-name {  
    term term-name {  
      from {  
        match-conditions;  
      }  
      then {  
        action;  
        action-modifiers;  
      }  
    }  
  }  
} # End of [edit firewall] hierarchy level
```

FIGURE 10

***[edit forwarding-options] Hierarchy Level***

```
forwarding-options {  
  sampling {  
    disable;  
    input {  
      family inet {  
        rate number;  
        run-length number;  
      }  
    }  
    output {  
      cflowd hostname {  
        engine-id idnumber;  
        (local-dump | no-local-dump);  
        port portnumber;  
        version format;  
      }  
      file {  
        filename filename;  
        files number;  
        size bytes;  
        (stamp | no-stamp);  
        (world-readable | no-world-readable);  
      }  
    }  
  }  
  traceoptions {  
    file filename {  
      files number;  
      size bytes;  
      (world-readable | no-world-readable);  
    }  
  }  
}  
} #End of [edit forwarding-options] hierarchy level
```

FIGURE 11

***[edit groups] Hierarchy Level***

```
groups (  
  group-name (  
    configuration-data;  
  )  
) #End of [edit groups] hierarchy level
```

FIGURE 12

## **[edit interfaces] Hierarchy Level**

```
interfaces {  
  traceoptions {  
    file filename <size size> <files number>;  
  }  
  interface-name {  
    disable;  
    atm-options {  
      vpi vpi-identifier max-vcs vcs-value;  
      ilmi;  
    }  
    clocking clock-source;  
    dce;  
    description text;  
    e1-options {  
      fcs (32 | 16);  
      framing (g704 | unframed);  
      idle-cycle-flag (flags | ones);  
      loopback (local | remote);  
      start-end-flag (shared | filler);  
      timeslots slot-number;  
    }  
    e3-options {  
      bert-algorithm algorithm;  
      bert-error-rate rate;  
      bert-period seconds;  
      compatibility-mode (digital-link | kentrox);  
      fcs (32 | 16);  
      idle-cycle-flag value;  
      loopback (local | remote);  
      (payload-scrambler | no-payload-scrambler);  
      start-end-flag value;  
    }  
    encapsulation type;  
    fastether-options {  
      (loopback | no-loopback);  
      source-address-filter {  
        mac-address;  
      }  
      (source-filtering | no-source-filtering);  
    }  
    gigether-options {  
      flow-control;  
      (loopback | no-loopback);  
      source-address-filter {  
        mac-address;  
      }  
      (source-filtering | no-source-filtering);  
    }  
    hold-time seconds;  
    link-mode mode;  
    mac mac-address;  
    mtu bytes;  
    no-keepalives;  
    no-traps;  
    receive-bucket {  
      overflow (tag | discard);  
      rate speed;  
      threshold number;  
    }  
  }  
}
```

FIGURE 13a

```

sonet-options (
  aps (
    advertise-interval milliseconds;
    authentication-key key;
    force;
    hold-time milliseconds;
    lockout;
    neighbor address;
    paired-group group-name;
    protect-circuit group-name;
    request;
    revert-time seconds;
    working-circuit group-name;
  )
  bytes (
    e1-quiet value;
    f1 value;
    f2 value;
    s1 value;
    z3 value;
    z4 value;
  )
  fcs (32 | 16);
  loopback (local | remote);
  path-trace trace-string;
  (payload-scrambler | no-payload-scrambler);
  rfc-2615;
  (z0-increment | no-z0-increment);
)
speed (10m | 100m);
t1-options (
  buildout (0-133 | 133-266 | 266-399 | 399-532 | 532-655);
  byte-encoding (nx64 | nx56);
  fcs (32 | 16);
  framing (sf | esf);
  idle-cycle-flags (flags | ones);
  invert-data;
  line-encoding (ami | b8zs);
  loopback (local | remote);
  start-end-flag (shared | filler);
  timeslots slot-number;
)
t3-options (
  bert-algorithm algorithm;
  bert-error-rate rate;
  bert-period seconds;
  (cbit-parity | no-cbit-parity);
  compatibility-mode (digitalink | kentrox | larscom) <subrate value>;
  fcs (32 | 16);
  (feac-loop-respond | no-feac-loop-respond);
  idle-cycle-flag value;
  (long-buildout | no-long-buildout);
  loopback (local | remote);
  (payload-scrambler | no-payload-scrambler);
  start-end-flag value;
)
traceoptions (
  flag flag <flag-modifier> <disable>;
)
transmit-bucket (
  overflow (tag | discard);
  rate speed;

```

FIGURE 13b

```

        threshold number;
    }
    vlan-tagging;
    unit logical-unit-number {
        disable;
        dci identifier;
        encapsulation type;
        inverse-arp;
        multicast-dci dci-identifier;
        multicast-vci vpi-identifier.vci-identifier;
        multipoint;
        no-traps;
        oam-liveness {
            up-count cells;
            down-count cells;
        }
        oam-period seconds;
        point-to-point;
        shaping {
            (cbr rate | vbr peak rate sustained rate burst length);
            queue-length number;
        }
        tunnel {
            source address;
            destination address;
            ttl number;
        }
        vci vpi-identifier.vci-identifier;
        vlan-id number;
        family family {
            filter {
                input filter-name;
                output filter-name;
                group filter-group-number;
            }
            mtu size;
            multicasts-only;
            no-redirects;
            primary;
            address address {
                arp ip-address mac mac-address <publish>;
                destination address;
                broadcast address;
                multipoint-destination destination-address (dci dci-identifier | vci vci-identifier);
                multipoint-destination destination-address {
                    inverse-arp;
                    oam-liveness {
                        up-count cells;
                        down-count cells;
                    }
                    oam-period seconds;
                    shaping {
                        (cbr rate | vbr peak rate sustained rate burst length);
                        queue-length number;
                    }
                }
                vci vpi-identifier.vci-identifier;
            }
        }
        primary;
        preferred;
    }

```

FIGURE 13c

```

vrp-group group-number {
  virtual-address { addresses };
  priority number;
  advertise-interval seconds;
  authentication-type authentication;
  authentication-key key;
  (preempt | no-preempt);
  track {
    interface interface-name priority-cost cost;
  }
}
}
}
}
} # End of [edit interfaces] hierarchy level

```

FIGURE 13d



### ***[edit policy-options] Hierarchy Level***

```
policy-options {  
  as-path name regular-expression;  
  community name members { community-ids };  
  damping name {  
    disable;  
    half-life minutes;  
    max-suppress minutes;  
    reuse number;  
    suppress number;  
  }  
  policy-statement policy-name {  
    term term-name {  
      from {  
        match-conditions;  
        route-filter destination-prefix match-type <actions>;  
        prefix-list name;  
      }  
      to {  
        match-conditions;  
      }  
      then actions;  
    }  
  }  
  prefix-list name {  
    ip-addresses;  
  }  
} # End of [edit policy-options] hierarchy level
```

FIGURE 14

### ***[edit protocols] Hierarchy Level***

protocols {

**BGP**    bgp {  
          advertise-inactive;  
          authentication-key *key*;  
          cluster *cluster-identifier*;  
          damping;  
          description *text-description*;  
          disable;  
          export [*policy-name*];

**FIGURE 15a**

```

family inet {
    (any | unicast | multicast) {
        prefix-limit {
            maximum number;
            teardown <percentage>;
        }
    }
}

hold-time seconds;
import [policy-name];
keep (all | none);
local-address address;
local-as autonomous-system <private>;
local-preference local-preference;
log-updown;
metric-out metric;
multihop <ttl-value>;
no-aggregator-id;
no-client-reflect;
out-delay seconds;
passive;
path-selection (cisco-non-deterministic | always-compare-med);
peer-as autonomous-system;
preference preference;
remove-private;
traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
}

group group-name {
    advertise-inactive;
    allow [network/masklen];
    authentication-key key;
    cluster cluster-identifier;
    damping;
    description text-description;
    export [policy-name];
    family inet {
        (any | unicast | multicast) {
            prefix-limit {
                maximum number;
                teardown <percentage>;
            }
        }
    }
}

hold-time seconds;
import [policy-name];
keep (all | none);
local-address address;
local-as autonomous-system <private>;
local-preference local-preference;
log-updown;
metric-out metric;
multihop <ttl-value>;
multipath;
no-aggregator-id;
no-client-reflect;
out-delay seconds;
passive;
peer-as autonomous-system;

```

FIGURE 15b

```

        preference preference;
        protocol protocol;
        remove-private;
        traceoptions {
            file name <replace> <size size> <files number> <no-stamp>
                <(world-readable | no-world-readable)>;
            flag flag <flag-modifier> <disable>;
        }
        type type;
        neighbor address {
            advertise-inactive;
            authentication-key key;
            cluster cluster-identifier;
            damping;
            description text-description;
            export [policy-name];
            family inet {
                (any | unicast | multicast) {
                    prefix-limit {
                        maximum number;
                        teardown <percentage>;
                    }
                }
            }
        }
        hold-time seconds;
        import policy-name;
        keep (all | none);
        local-address address;
        local-as autonomous-system <private>;
        local-preference local-preference;
        log-updown;
        metric-out metric;
        multihop <tth-value>;
        multipath;
        no-agggregator-id;
        no-client-reflect;
        out-delay seconds;
        passive;
        peer-as autonomous-system;
        preference preference;
        protocol protocol;
        traceoptions {
            file name <replace> <size size> <files number> <no-stamp>
                <(world-readable | no-world-readable)>;
            flag flag <flag-modifier> <disable>;
        }
    }
} # End of [edit protocols bgp] hierarchy level

```

FIGURE 15c

```

Connections      connections {
                    interface-switch connection-name {
                        interface interface-name.unit-number;
                        interface interface-name.unit-number;
                    }
                    lsp-switch connection-name {
                        transmit-lsp label-switched-path;
                        receive-lsp label-switched-path;
                    }
                    remote-interface-switch connection-name {
                        interface interface-name.unit-number;
                        transmit-lsp label-switched-path;
                        receive-lsp label-switched-path;
                    }
                } # End of [edit protocols connections] hierarchy level

DVMRP            dvmrp {
                    disable;
                    export [ policy-names ];
                    import [ policy-names ];
                    rib-group group-name;
                    traceoptions {
                        file name <replace> <size size> <files number> <no-stamp>
                          <(world-readable | no-world-readable)>;
                        flag flag <flag-modifier> <disable>;
                    }
                    interface interface-name {
                        disable;
                        hold-time seconds;
                        metric metric;
                    }
                } # End of [edit protocols dvmrp] hierarchy level

IGMP             igmp {
                    traceoptions {
                        file name <replace> <size size> <files number> <no-stamp>
                          <(world-readable | no-world-readable)>;
                        flag flag <flag-modifier> <disable>;
                    }
                    query-interval seconds;
                    query-last-member-interval seconds;
                    query-response-interval seconds;
                    robust-count seconds;
                    interface interface-name {
                        disable;
                        version seconds;
                    }
                } # End of [edit protocols igmp] hierarchy level

IS-IS            isis {
                    disable;
                    authentication-key key;
                    authentication-type authentication;
                    export [ policy-names ];
                    level level-number {
                        authentication-key key;
                        authentication-type authentication;
                        external-preference preference;
                        preference preference;
                        wide-metrics-only;
                    }
                }

```

FIGURE 15d

```

    lsp-lifetime seconds;
    no-authentication-check;
    overload <timeout seconds>;
    reference-bandwidth reference-bandwidth;
    traffic-engineering {
        disable;
        shortcuts;
    }
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    interface interface-name {
        disable;
        csnp-interval seconds;
        hello-authentication-key key;
        hello-authentication-type authentication;
        lsp-interval milliseconds;
        mesh-group (value | blocked);
        passive;
        level level-number {
            disable;
            hello-authentication-key key;
            hello-authentication-type authentication;
            hello-interval seconds;
            hold-time seconds;
            metric metric;
            passive;
            priority priority;
            te-metric metric;
        }
    }
} # End of [edit protocols isis] hierarchy level

LDP ldp {
    interface interface-name {
        disable;
        hello-interval seconds;
        hold-time seconds;
    }
    keepalive-interval seconds;
    keepalive-timeout seconds;
    preference preference;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
} # End of [edit protocols ldp] hierarchy level

MPLS mpls {
    disable;
    no-propagate-ttl;
    admin-groups {
        group-name group-value;
    }
    log-updown {
        (syslog | no-syslog);
        (trap | no-trap);
    }
}

```

FIGURE 15e

```

optimize-aggressive;
path path-name {
    disable;
    address <strict | loose>;
}
statistics {
    file filename size size files number <no-stamp>;
    interval seconds;
}
traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
}
traffic-engineering (bgp | bgp-igp);
label-switched-path lsp-path-name {
    disable;
    to address;
    from address;
    adaptive;
    admin-group {
        include [ group-names ];
        exclude [ group-names ];
    }
    bandwidth bps;
    class-of-service class-of-service;
    fast-reroute {
        bandwidth bps;
        hop-limit number;
        include group-names;
        exclude group-names;
    }
    hop-limit number;
    ldp-tunneling;
    metric metric;
    no-cspf;
    no-decrement-ttl;
    optimize-timer seconds;
    preference preference;
    priority setup-priority hold-priority;
    (random | least-fill | most-fill);
    (record | no-record);
    retry-limit number;
    retry-timer seconds;
    standby;
    primary path-name {
        adaptive;
        admin-group {
            include [ group-names ];
            exclude [ group-names ];
        }
        bandwidth bps;
        class-of-service class-of-service;
        hop-limit number;
        no-cspf;
        optimize-timer seconds;
        preference preference;
        priority setup-priority hold-priority;
        (record | no-record);
        standby;
    }
}

```

FIGURE 15f

```

secondary path-name {
    adaptive;
    admin-group {
        include group-names;
        exclude group-names;
    }
    bandwidth bps;
    class-of-service class-of-service;
    hop-limit number;
    no-cspf;
    optimize-timer seconds;
    preference preference;
    priority setup-priority hold-priority;
    (record | no-record);
    standby;
}
install {
    destination-prefix/prefix-length <active>;
}
}
interface (interface-name | all) {
    disable;
    admin-group {
        group-name;
    }
    label-map in-label {
        (nexthop (address | interface-name | address/interface-name)) | (reject | discard);
        (pop | (swap <out-label>));
        class-of-service class-of-service;
        preference preference;
        type type;
    }
}
static-path inet {
    prefix {
        nexthop (address | interface-name | address/interface-name);
        push out-label;
        class-of-service class-of-service;
        preference preference;
    }
}
} # End of [edit protocols mpls] hierarchy level

```

```

MSDP msdp {
    disable;
    export [ policy-names ];
    import [ policy-names ];
    rib-group group-name;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    peer address {
        disable;
        local-address address;
        export [ policy-names ];
        import [ policy-names ];
        traceoptions {
            file name <replace> <size size> <files number> <no-stamp>
                <(world-readable | no-world-readable)>;
        }
    }
}

```

FIGURE 15g



```

        flag flag <flag-modifier> <disable>;
    }
}
group group-name {
    disable;
    export [ policy-names ];
    import [ policy-names ];
    local-address address;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    peer address {
        disable;
        export [ policy-names ];
        import [ policy-names ];
        local-address address;
        mode <(mesh-group | standard)>;
        traceoptions {
            file name <replace> <size size> <files number> <no-stamp>
                <(world-readable | no-world-readable)>;
            flag flag <flag-modifier> <disable>;
        }
    }
}
) #End of [edit protocols msdp] hierarchy level

OSPF ospf {
    disable;
    export [ policy-names ];
    external-preference preference;
    preference preference;
    reference-bandwidth reference-bandwidth;
    traffic-engineering {
        no-topology;
        shortcuts;
    }
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    area area-id {
        area-range network/masklen <restrict>;
        authentication-type authentication;
        interface interface-name {
            disable;
            authentication-key key <key-id identifier>;
            dead-interval seconds;
            hello-interval seconds;
            interface-type type;
            metric metric;
            neighbor address <eligible>;
            passive;
            poll-interval seconds;
            priority priority;
            retransmit-interval seconds;
            transit-delay seconds;
            transmit-interval seconds;
        }
    }
}

```

FIGURE 15h

```

nssa {
    area-range network/masklen <restrict>;
    default-metric metric;
    (summaries | no-summaries);
}
stub <default-metric metric> <(summaries | no-summaries)>;
virtual-link neighbor-id router-id transit-area area-id {
    disable;
    authentication-key key <key-id identifier>;
    dead-interval seconds;
    hello-interval seconds;
    retransmit-interval seconds;
    transit-delay seconds;
}
} # End of [edit protocols ospf] hierarchy level

PIM pim {
    disable;
    dense-groups {
        addresses;
    }
    rib-group group-name;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    interface interface-name {
        disable;
        mode (dense | sparse | sparse-dense);
        priority number;
        version version;
    }
    rp {
        local {
            disable;
            address address;
            group-ranges {
                destination-mask;
            }
            hold-time seconds;
            priority number;
        }
        auto-rp (announce | discovery | mapping);
        bootstrap-priority number;
        static {
            address address {
                version version;
                group-ranges {
                    destination-mask;
                }
            }
        }
    }
} # End of [edit protocols pim] hierarchy level

RIP rip {
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;

```

FIGURE 15i

```

        flag flag <flag-modifier> <disable>;
    }
    authentication-key password;
    authentication-type type;
    (check-zero | no-check-zero);
    import [policy];
    message-size number;
    metric-in metric;
    receive receive-options;
    send send-options;
    group group-name {
        export [policy];
        metric-out metric;
        preference preference;
        neighbor neighbor-name {
            authentication-key password;
            authentication-type type;
            (check-zero | no-check-zero);
            import [policy];
            message-size number;
            metric-in metric;
            receive receive-options;
            send send-options;
        }
    }
} # End of [edit protocols rip] hierarchy level

```

```

Router Discovery router-discovery {
    disable;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    interface interface-name {
        min-advertisement-interval seconds;
        max-advertisement-interval seconds;
        lifetime seconds;
    }
    address address {
        (advertise | ignore);
        (broadcast | multicast);
        (priority priority | ineligible);
    }
} # End of [edit protocols router-discovery] hierarchy level

```

```

RSVP rsvp {
    disable;
    keep-multiplier number;
    refresh-time seconds;
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
    interface interface-name {
        disable;
        (aggregate | no-aggregate);
        authentication-key key;
        bandwidth bps;
    }
}

```

FIGURE 15j

```

        hello-interval seconds;
        subscription percentage;
    }
} # End of [edit protocols rsvp] hierarchy level

SDP/SAP    sap {
            disable;
            listen <address> <port port>;
        } # End of [edit protocols sap] hierarchy level

VRRP       traceoptions {
            flag flag;
        } # End of [edit protocols vrrp] hierarchy level
    } # End of [edit protocols] hierarchy level

```

FIGURE 15k

### ***[edit routing-instances] Hierarchy Level***

```
[edit]
routing-instances routing-instance-name {
  interface interface-name;
  protocols {
    ospf {
      ospf-configuration;
    }
  }
}
routing-options {
  aggregate {
    defaults {
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
  }
  autonomous-system autonomous-system <loops number>;
  confederation confederation-autonomous-system members autonomous-system;
  fate-sharing {
    group group-name;
    cost value;
    from address [to address];
  }
  forwarding-table {
    export [ policy-names ];
  }
  generate {
    defaults {
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
  }
}
```

FIGURE 16a

```

interface-routes {
    rib-group routing-table-name;
}
martians {
    destination-prefix match-type <allow>;
}
multicast {
    scope scope-name {
        interface interface-name;
        prefix destination-prefix;
    }
}
options {
    syslog (level level | upto level);
}
rib routing-table {
    aggregate {
        defaults {
            (active | passive);
            as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
                <aggregator as-number in-address>;
            community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
            (full | brief);
            (metric | metric2 | metric3 | metric4) value;
            (preference | preference2 | color | color2) preference;
            (tag | tag2) string;
        }
        route destination-prefix {
            policy policy-name;
            (active | passive);
            as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
                <aggregator as-number in-address>;
            community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
            (full | brief);
            (metric | metric2 | metric3 | metric4) value;
            (preference | preference2 | color | color2) preference;
            (tag | tag2) string;
        }
    }
    generate {
        defaults {
            (active | passive);
            as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
                <aggregator as-number in-address>;
            community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
            (full | brief);
            (metric | metric2 | metric3 | metric4) value;
            (preference | preference2 | color | color2) preference;
            (tag | tag2) string;
        }
    }
}
martians {
    destination-prefix match-type <allow>;
}

```

FIGURE 16b

```

static {
    defaults {
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
            <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (install | no-install);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (readvertise | no-readvertise);
        (no-retain | retain);
        (tag | tag2) string;
    }
    route destination-prefix {
        policy policy-name;
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
            <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (full | brief);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (tag | tag2) string;
    }
}
rib-groups {
    group-name {
        import-rib [ group-name ];
        export-rib group-name;
    }
}
route-record;
router-id address;
static {
    defaults {
        (active | passive);
        as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
            <aggregator as-number in-address>;
        community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
        (install | no-install);
        (metric | metric2 | metric3 | metric4) value;
        (preference | preference2 | color | color2) preference;
        (readvertise | no-readvertise);
        (no-retain | retain);
        (tag | tag2) string;
    }
    traceoptions {
        file name <replace> <size size> <files number> <no-stamp>
            <(world-readable | no-world-readable)>;
        flag flag <flag-modifier> <disable>;
    }
}

```

FIGURE 16c

## *[edit routing-options] Hierarchy Level*

```
routing-options {
  aggregate {
    defaults {
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
    route destination-prefix {
      policy policy-name;
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
  }
  autonomous-system autonomous-system <loops number>;
  confederation confederation-autonomous-system members autonomous-system;
  forwarding-table {
    export { policy-names };
  }
  generate {
    defaults {
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
    route destination-prefix {
      policy policy-name;
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (full | brief);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (tag | tag2) string;
    }
  }
}
interface-routes {
  rib-group routing-table-name;
}
martians {
  destination-prefix match-type <allow>;
}
```

FIGURE 17a



```

multicast {
  scope scope-name {
    interface interface-name;
    prefix destination-prefix;
  }
}
options {
  syslog (level level | upto level);
}
rib routing-table {
  static {
    defaults {
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (install | no-install);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (readvertise | no-readvertise);
      (no-retain | retain);
      (tag | tag2) string;
    }
    route destination-prefix {
      next-hop;
      (active | passive);
      as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
        <aggregator as-number in-address>;
      community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
      (install | no-install);
      (metric | metric2 | metric3 | metric4) value;
      (preference | preference2 | color | color2) preference;
      (readvertise | no-readvertise);
      (no-retain | retain);
      (tag | tag2) string;
    }
  }
}
aggregate {
  defaults {
    (active | passive);
    as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
      <aggregator as-number in-address>;
    community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
    (full | brief);
    (metric | metric2 | metric3 | metric4) value;
    (preference | preference2 | color | color2) preference;
    (tag | tag2) string;
  }
  route destination-prefix {
    policy policy-name;
    (active | passive);
    as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
      <aggregator as-number in-address>;
    community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
    (full | brief);
    (metric | metric2 | metric3 | metric4) value;
    (preference | preference2 | color | color2) preference;
    (tag | tag2) string;
  }
}

```

FIGURE 17b

```

generate (
  defaults {
    (active | passive);
    as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
      <aggregator as-number in-address>;
    community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
    (full | brief);
    (metric | metric2 | metric3 | metric4) value;
    (preference | preference2 | color | color2) preference;
    (tag | tag2) string;
  }
  route destination-prefix {
    policy policy-name;
    (active | passive);
    as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
      <aggregator as-number in-address>;
    community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
    (full | brief);
    (metric | metric2 | metric3 | metric4) value;
    (preference | preference2 | color | color2) preference;
    (tag | tag2) string;
  }
)
martians {
  destination-prefix match-type <allow>;
}
rib-groups {
  group-name {
    import-rib [ group-name ];
    export-rib group-name;
  }
}
router-id address;
static {
  defaults {
    (active | passive);
    as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
      <aggregator as-number in-address>;
    community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
    (install | no-install);
    (metric | metric2 | metric3 | metric4) value;
    (preference | preference2 | color | color2) preference;
    (readvertise | no-readvertise);
    (no-retain | retain);
    (tag | tag2) string;
  }
  route destination-prefix {
    next-hop;
    (active | passive);
    as-path <as-path> <origin (egp | igp | incomplete | none)> <atomic-aggregate>
      <aggregator as-number in-address>;
    community ([ community-ids ] | no-advertise | no-export | no-export-subconfed | none);
    (install | no-install);
    (metric | metric2 | metric3 | metric4) value;
    (preference | preference2 | color | color2) preference;
    (readvertise | no-readvertise);
    (no-retain | retain);
    (tag | tag2) string;
  }
}
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
) # End of [edit routing-options] hierarchy level

```

FIGURE 17c

### ***[edit snmp] Hierarchy Level***

```
snmp {  
  description description;  
  location location;  
  contact contact;  
  interface [ interface-names ];  
  community community-name {  
    authorization authorization;  
    clients {  
      default restrict;  
      address <restrict>;  
    }  
  }  
  trap-group group-name {  
    categories category;  
    targets {  
      address;  
    }  
    version version;  
  }  
  traceoptions {  
    file <files number> <size size>;  
    flag flag <disable>;  
  }  
} # End of [edit snmp] hierarchy level
```

FIGURE 18

## *[edit system] Hierarchy Level*

```
system {
  authentication-order [ authentication-methods ];
  backup-router address <destination destination-address>;
  compress-configuration-files;
  default-address-selection;
  dhcp-relay (server address | disable);
  diag-port-authentication (encrypted-password "password" | plain-text-password);
  domain-name domain-name;
  domain-search [ domain-list];
  host-name host-name;
  location {
    altitude feet;
    country-code code;
    hcoord horizontal-coordinate;
    lata service-area;
    latitude degrees;
    longitude degrees;
    npa-nxx number;
    postal-code postal-code;
    vcoord vertical-coordinate;
  }
  login {
    message text;
    class class-name {
      allow-commands "regular-expression";
      deny-commands "regular-expression";
      idle-timeout minutes;
      permissions [ permissions ];
    }
    user user-name {
      full-name complete-name;
      uid uid-value;
      class class-name;
      authentication {
        (encrypted-password "password" | plain-text-password);
        ssh-rsa "public-key";
      }
    }
  }
}
name-server {
  address;
}
no-redirects;
ntp {
  authentication-key key-number type type value password;
  boot-server address;
  broadcast <address> <key key-number> <version value> <ttl value>;
  broadcast-client;
  multicast-client <address>;
  peer address <key key-number> <version value> <prefer>;
  server address <key key-number> <version value> <prefer>;
  trusted-key [ key-numbers ];
}
ports {
  auxiliary {
    insecure;
    speed baud-rate;
    type terminal-type;
  }
  console {
    insecure;
    speed baud-rate;
    type terminal-type;
  }
}
```

FIGURE 19a

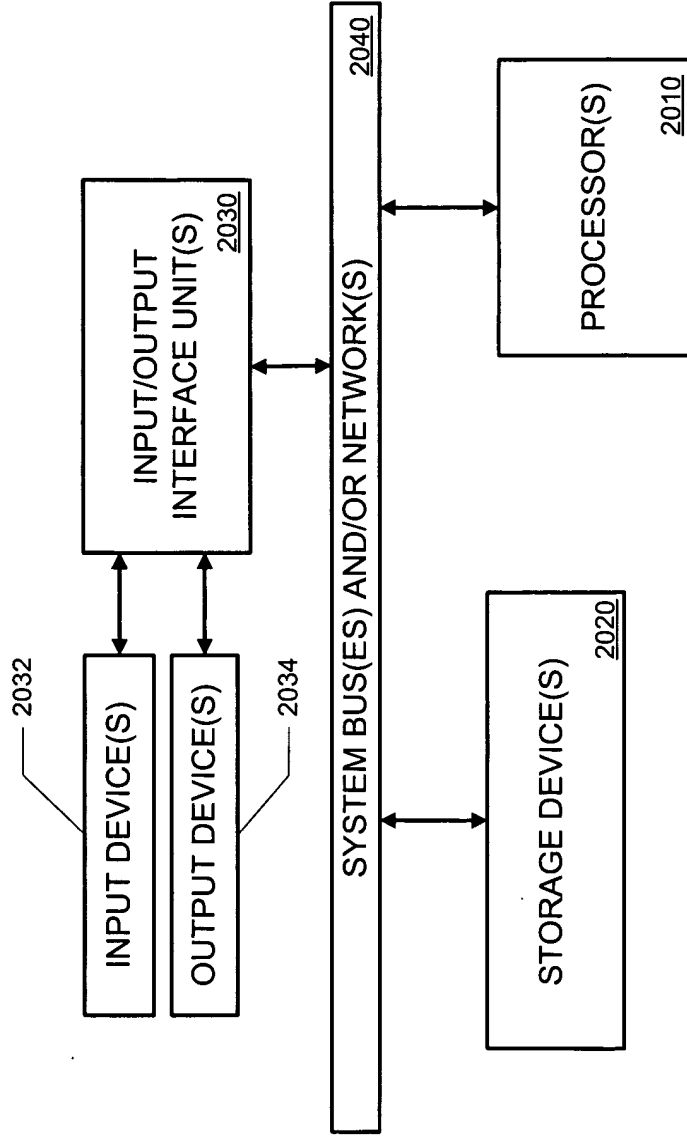
```

    )
  )
  processes {
    inet-process (enable | disable);
    interface-control (enable | disable);
    mlb-process (enable | disable);
    ntp (enable | disable);

    routing (enable | disable);
    snmp (enable | disable);
    watchdog (enable | disable) <timeout seconds>;
  }
  radius-server server-address {
    port number;
    retry number;
    secret password;
    timeout seconds;
  }
  root-authentication {
    (encrypted-password "password" | plain-text-password);
    ssh-rsa "public-key";
  }
  services {
    finger <connection-limit limit> <rate-limit limit>;
    ssh <connection-limit limit> <rate-limit limit>;
    telnet <connection-limit limit> <rate-limit limit>;
  }
  static-host-mapping {
    host-name {
      inet [ address ];
      sysid system-identifier;
      alias [ alias ];
    }
  }
  syslog {
    file filename {
      facility level;
      archive {
        files number;
        size size;
        (world-readable | no-world-readable);
      }
    }
    host hostname {
      facility level;
      facility-override facility;
      log-prefix string;
    }
    user (username | *) {
      facility level;
    }
    console {
      facility level;
    }
    archive {
      files number;
      size size;
      (world-readable | no-world-readable);
    }
  }
  tacplus-server server-address {
    secret password;
    single-connection;
    timeout seconds;
  }
  time-zone time-zone;
}} # End of [edit system] hierarchy level

```

FIGURE 19b



2000

FIGURE 20